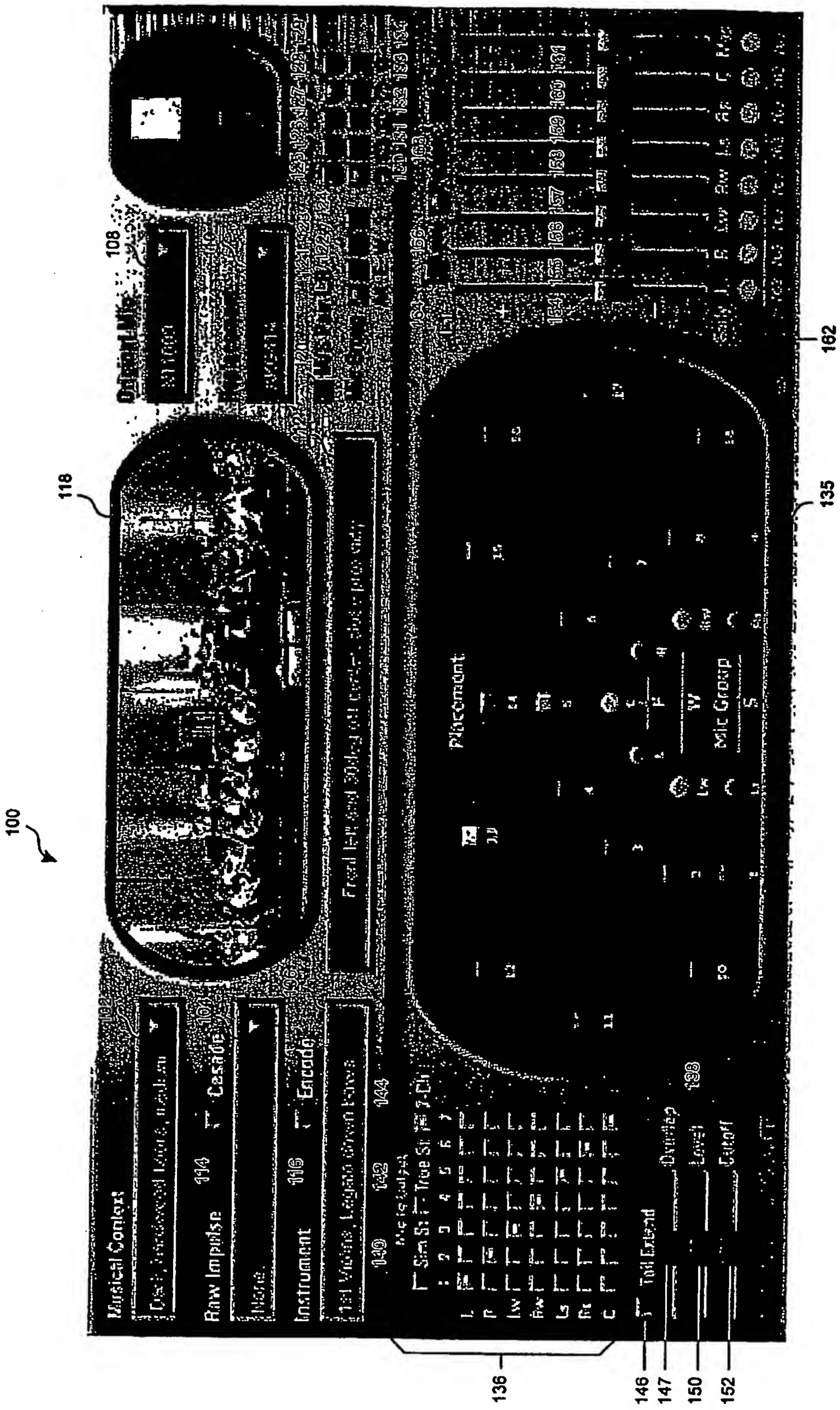
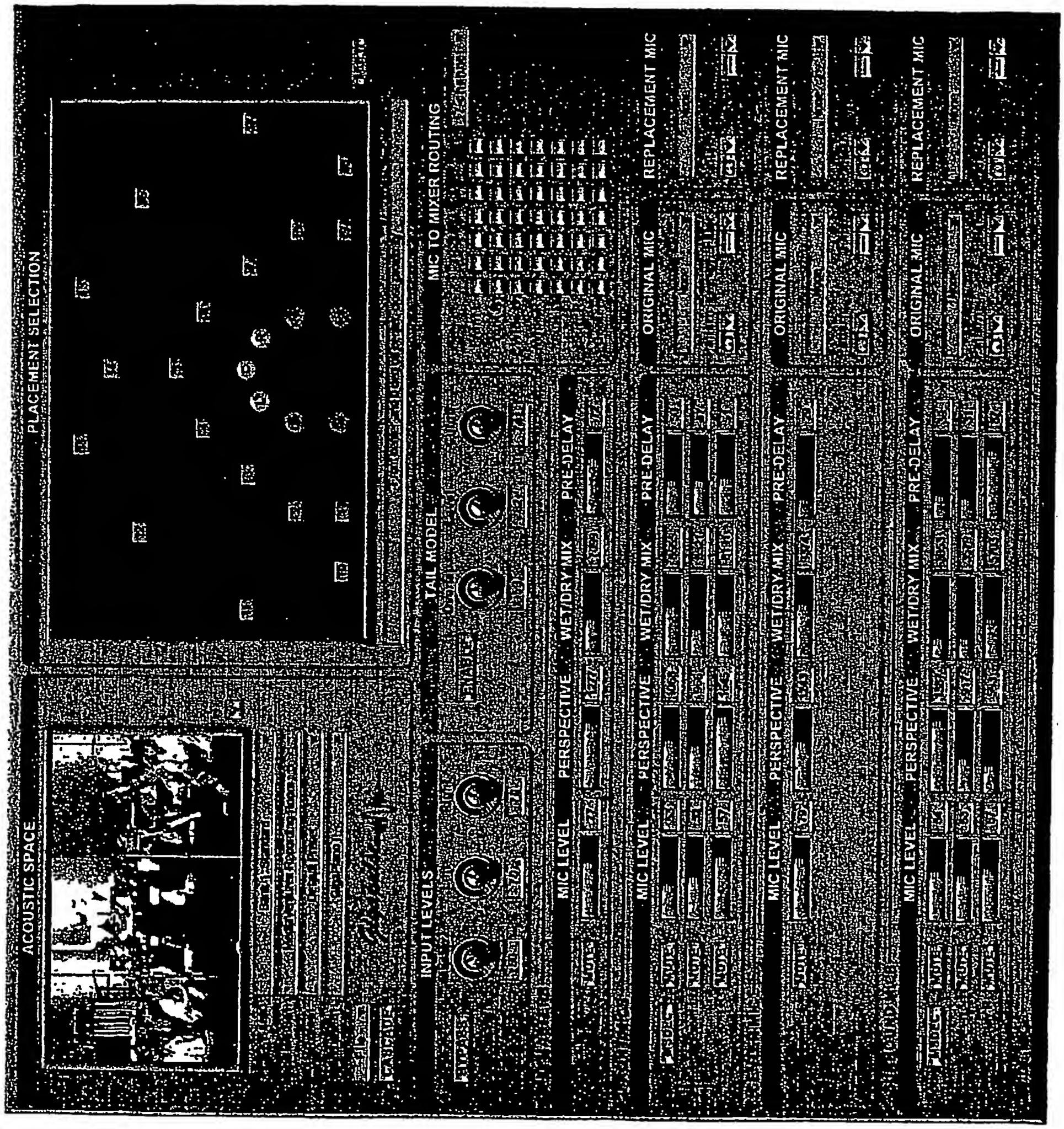


FIG. 1A

Best Available Copy

FIG. 1B



Best Available Copy

FIG. 1C

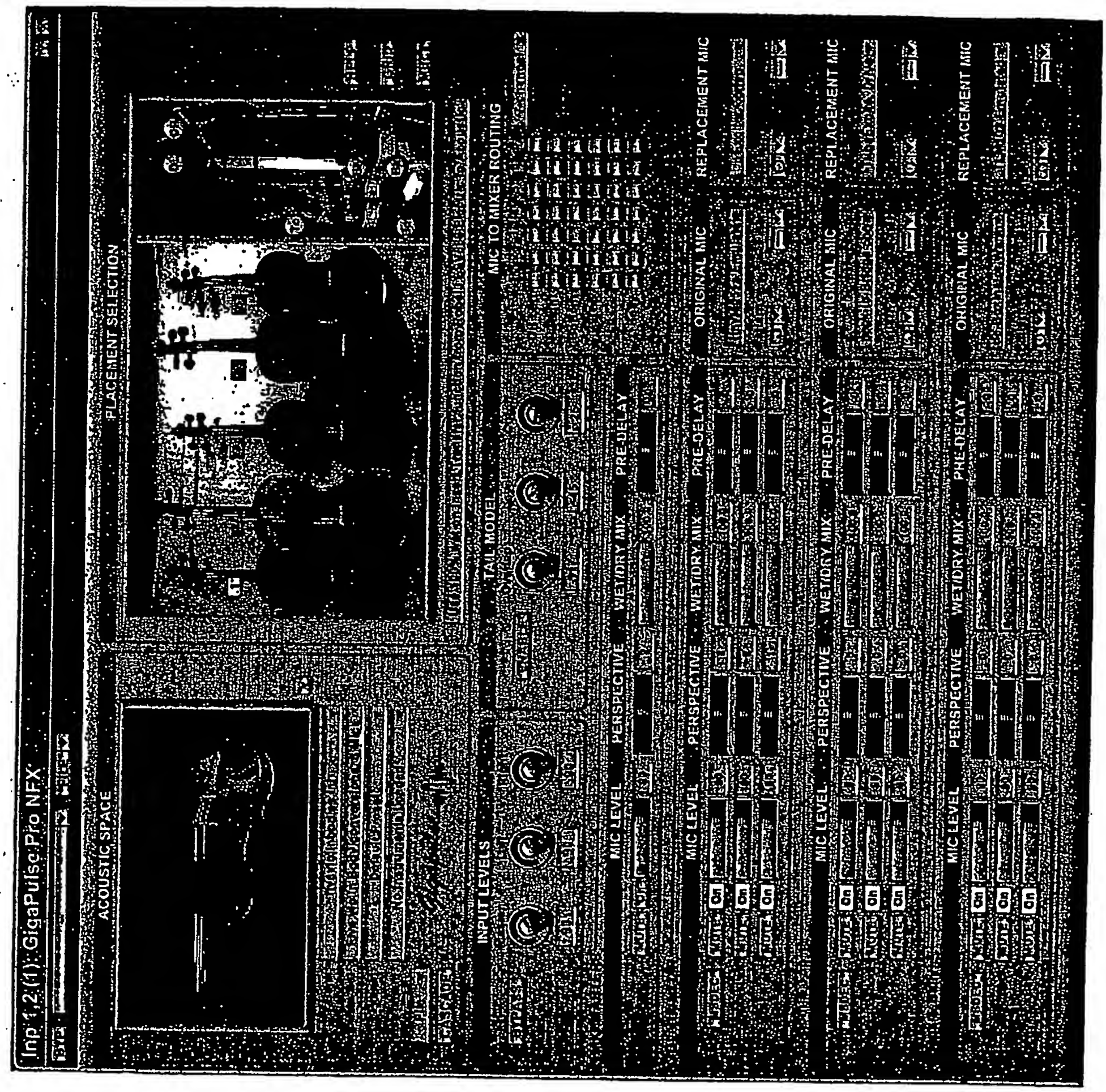


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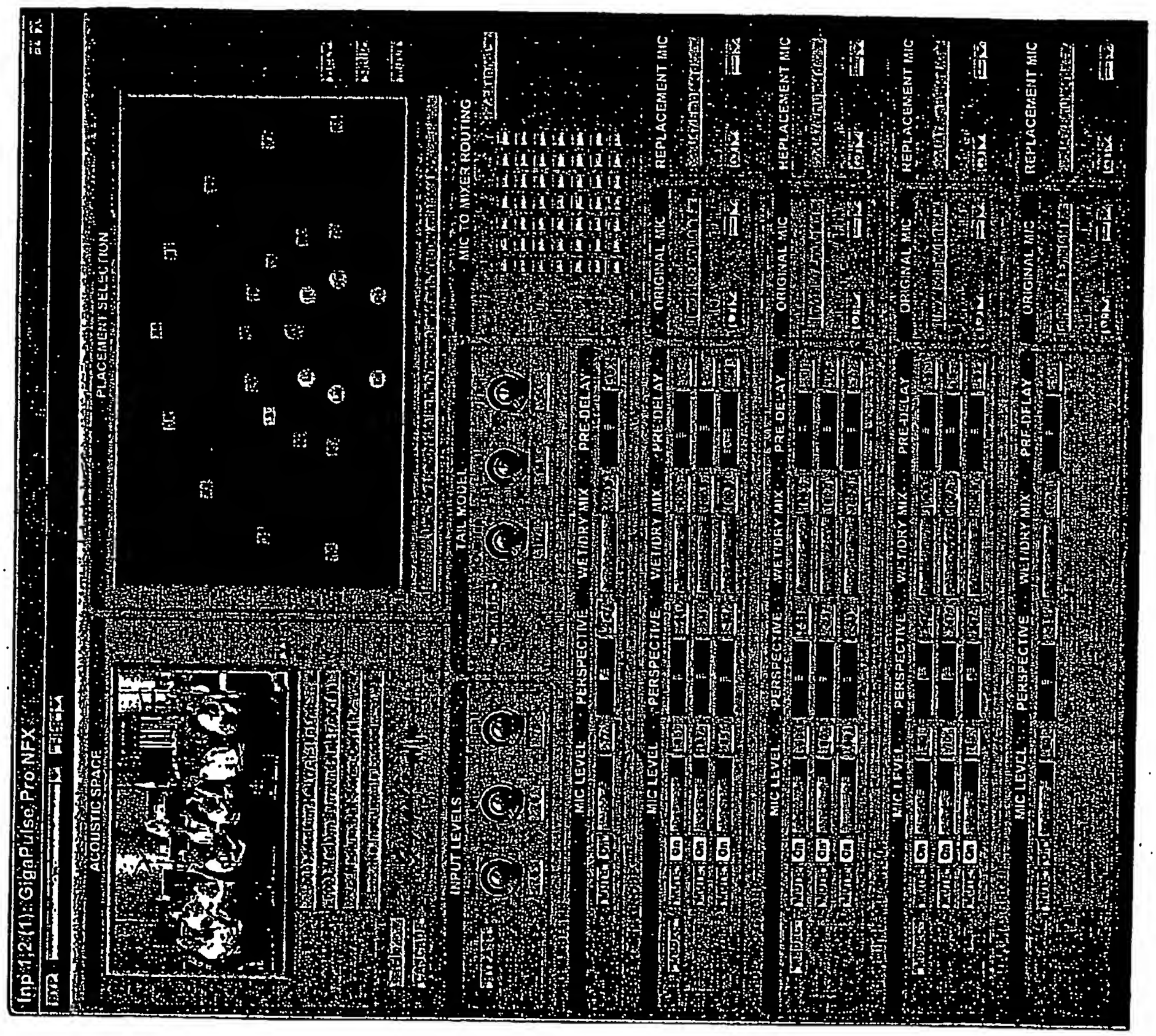
FIG. 1D



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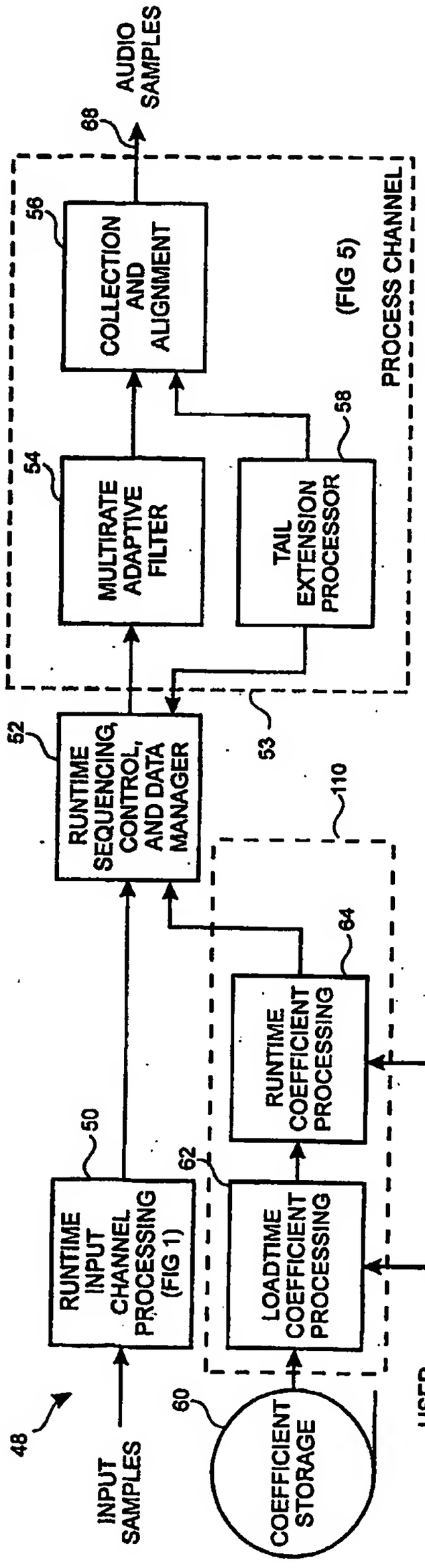
AUDIO SAMPLES
68
56
COLLECTION AND ALIGNMENT
PROCESS CHANNEL
(FIG 5)
58
54
MULTIRATE ADAPTIVE FILTER
TAIL EXTENSION PROCESSOR
53
52
RUNTIME SEQUENCING, CONTROL, AND DATA MANAGER
110
64
RUNTIME COEFFICIENT PROCESSING
50
RUNTIME INPUT CHANNEL PROCESSING (FIG 1)
62
LOADTIME COEFFICIENT PROCESSING
66
USER INPUT
48
INPUT SAMPLES
60
COEFFICIENT STORAGE

FIG. 2

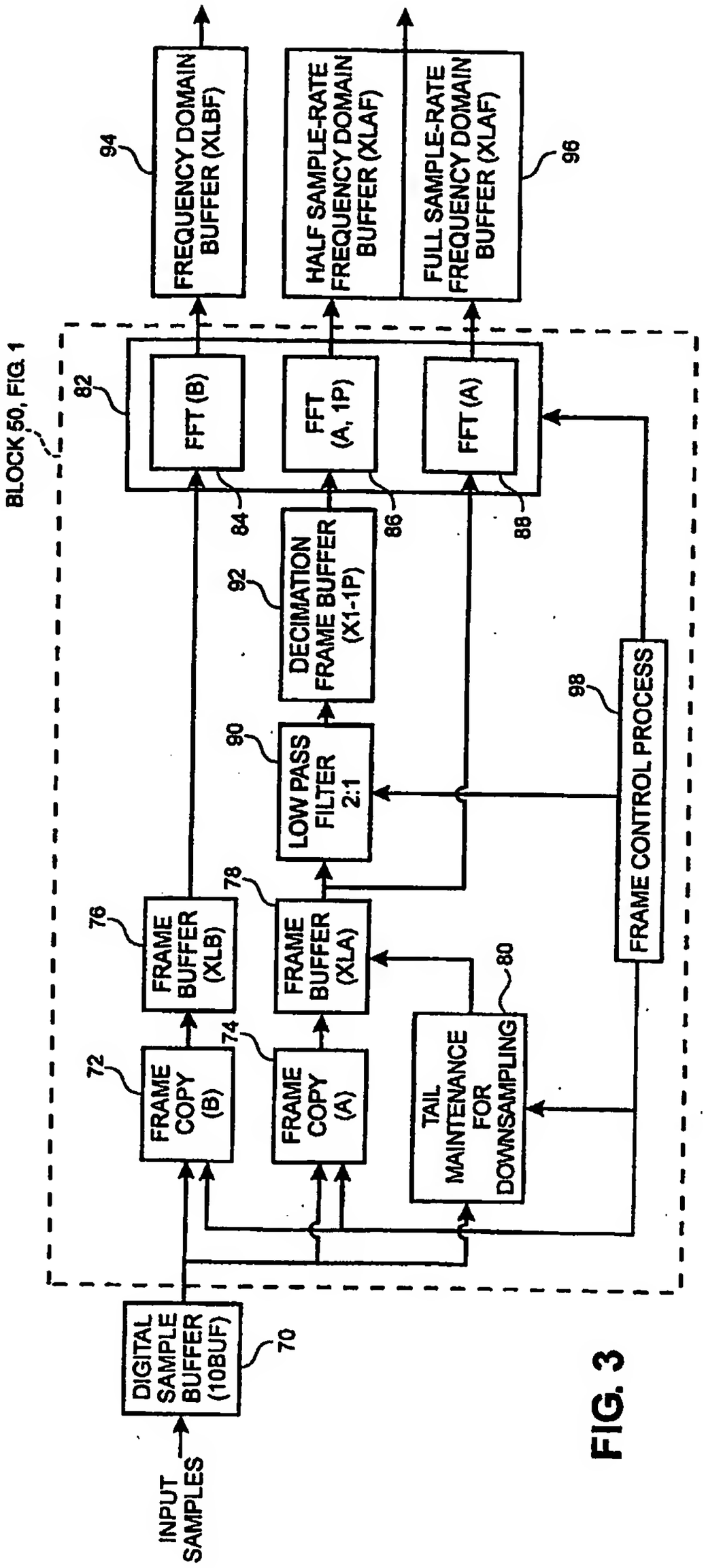
94
FREQUENCY DOMAIN BUFFER (XLBF)
HALF SAMPLE-RATE FREQUENCY DOMAIN BUFFER (XLAF)
FULL SAMPLE-RATE FREQUENCY DOMAIN BUFFER (XLAF)
96
BLOCK 50, FIG. 1
82
FFT (B)
FFT (A, 1P)
FFT (A)
84
86
88
92
DECIMATION FRAME BUFFER (X1-1P)
90
LOW PASS FILTER 2:1
98
FRAME CONTROL PROCESS
76
FRAME BUFFER (XLB)
78
FRAME BUFFER (XLA)
80
72
FRAME COPY (B)
74
FRAME COPY (A)
TAIL MAINTENANCE FOR DOWNSAMPLING
DIGITAL SAMPLE BUFFER (10BUF)
70
INPUT SAMPLES

FIG. 3

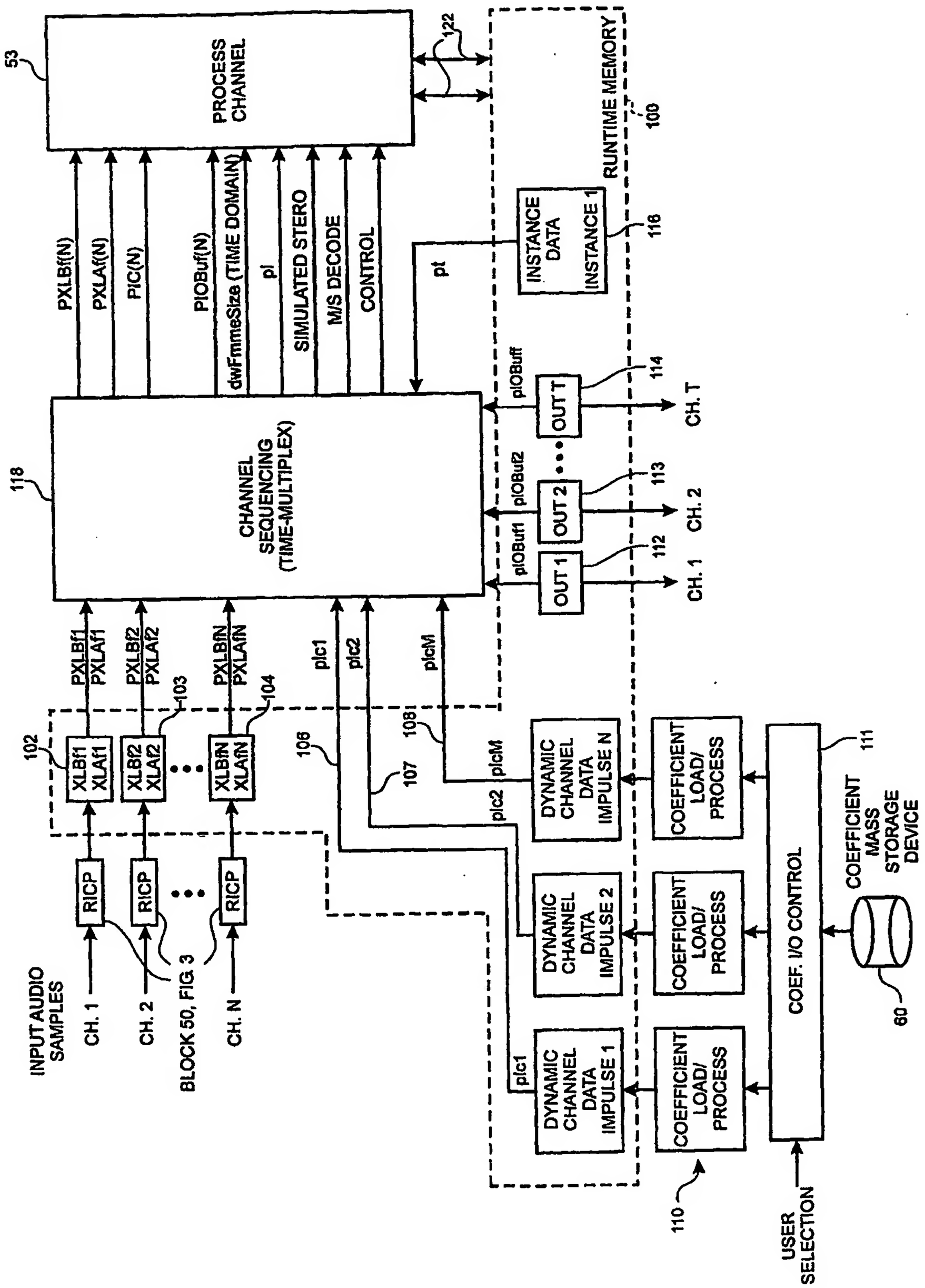
53
PROCESS CHANNEL
122
RUNTIME MEMORY
100
PXLBf(N)
PXLAf(N)
PIC(N)
PIOBuf(N)
dwFrmmeSize (TIME DOMAIN)
pl
SIMULATED STERO
M/S DECODE
CONTROL
pt
INSTANCE DATA
INSTANCE 1
118
pIOBuff
OUT T
114
CH. T
CHANNEL SEQUENCING (TIME-MULTIPLEX)
118
pIOBuff1
pIOBuf2
OUT 2
113
CH. 2
OUT 1
112
CH. 1
PXLBf1
PXLAf1
PXLBf2
PXLAf2
PXLBfN
PXLAfN
103
104
plc1
plc2
plcM
102
XLBf1
XLAf1
XLBf2
XLAf2
XLBfN
XLAfN
106
107
108
DYNAMIC CHANNEL DATA IMPULSE N
COEFFICIENT LOAD/ PROCESS
111
COEFFICIENT MASS STORAGE DEVICE
60
DYNAMIC CHANNEL DATA IMPULSE 2
DYNAMIC CHANNEL DATA IMPULSE 1
COEF. I/O CONTROL
110
USER SELECTION
RICP
RICP
RICP
INPUT AUDIO SAMPLES
CH. 1
CH. 2
BLOCK 50, FIG 3
CH. N

FIG. 4

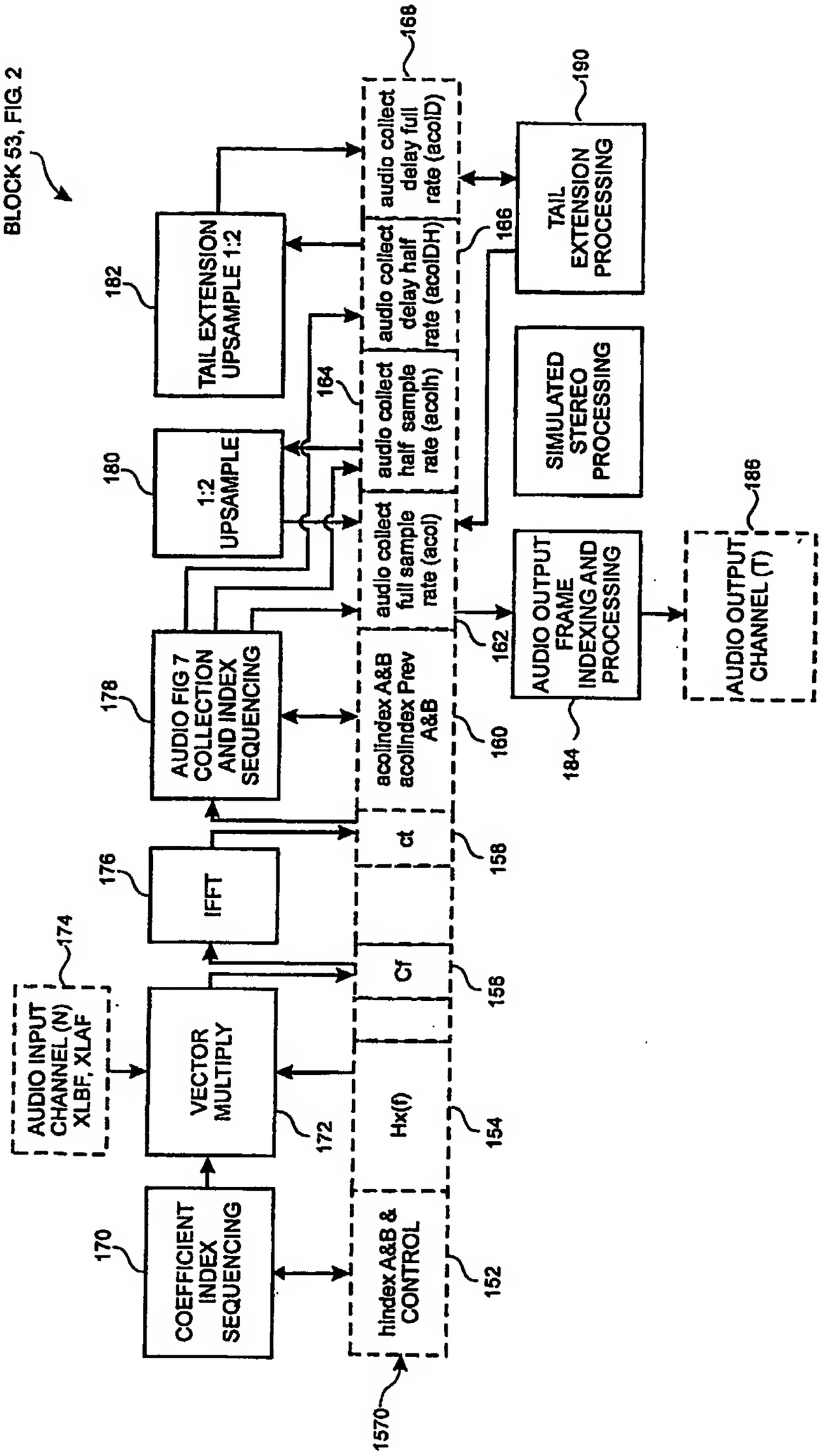
BLOCK 53, FIG 2
AUDIO INPUT CHANNEL (N) XLBF, XLAF
174
VECTOR MULTIPLY
172
COEFFICIENT INDEX SEQUENCING
170
IFFT
176
AUDIO FIG 7 COLLECTION AND INDEX SEQUENCING
178
TAIL EXTENSION UPSAMPLE 1:2
182
1:2 UPSAMPLE
180
Hx(f)
154
Cf
156
ct
158
acoIindex A&B
acoIIndex Prev A&B
160
hIndex A&B & CONTROL
152
1570
audio collect half sample rate (acoIh)
164
audio collect delay half rate (acoIDH)
audio collect delay full rate (acoIDF)
168
audio collect full sample rate (acoI)
162
TAIL EXTENSION PROCESSING
190
186
SIMULATED STEREO PROCESSING
AUDIO OUTPUT FRAME INDEXING AND PROCESSING
184
AUDIO OUTPUT CHANNEL (T)

FIG. 5

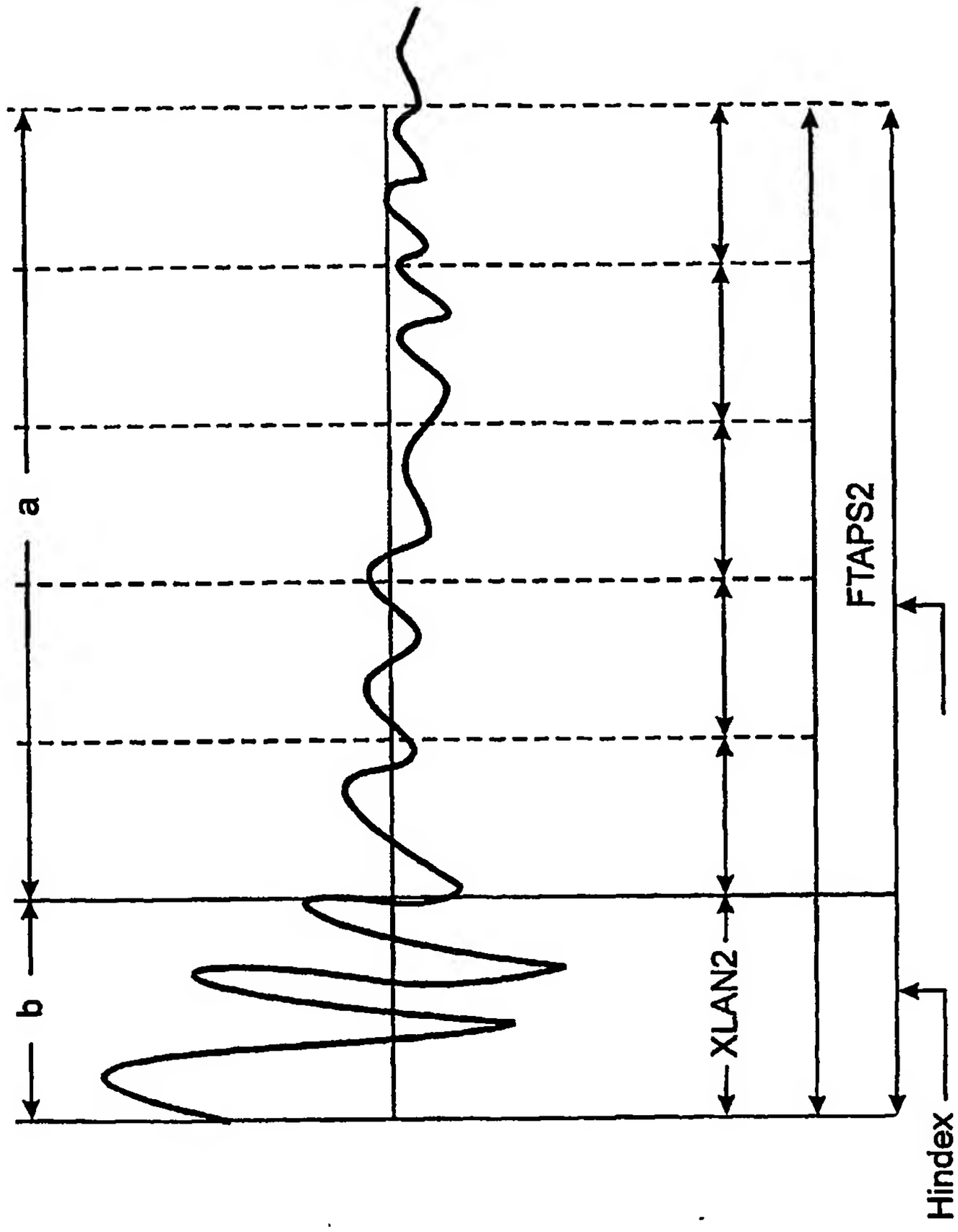

FIG. 6

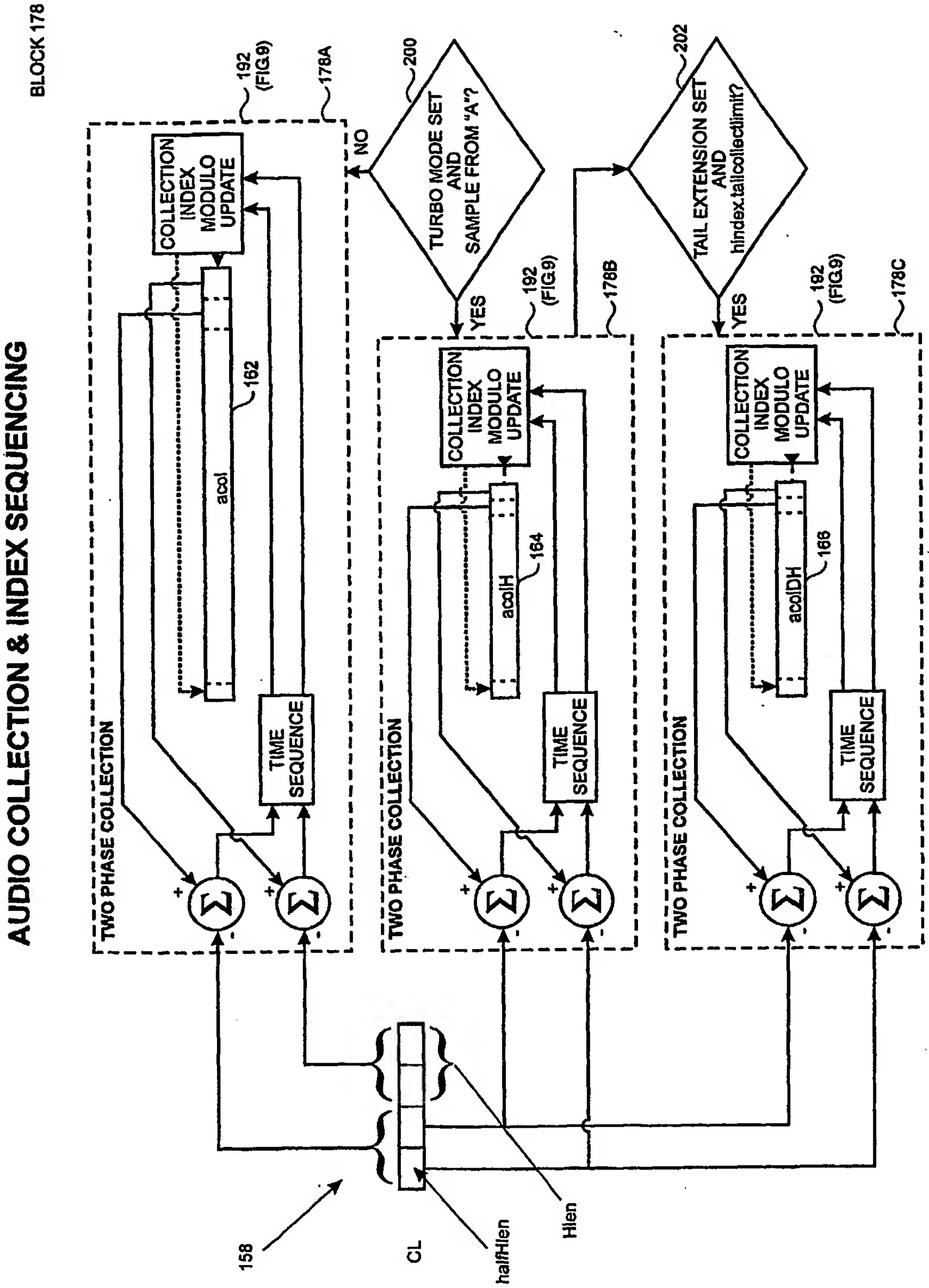
AUDIO COLLECTION & INDEX SEQUENCING
BLOCK 178
192 (FIG.9)
178A
200
TURBO MODE SET AND SAMPLE FROM "A"?
NO
YES
202
TAIL EXTENSION SET AND hIndex.tailcollectlimit?
178B
178C
COLLECTION INDEX MODULO UPDATE
TWO PHASE COLLECTION
TIME SEQUENCE
acol
162
acolH
164
acolDH
166
158
CL
halfHlen
Hlen

FIG. 7

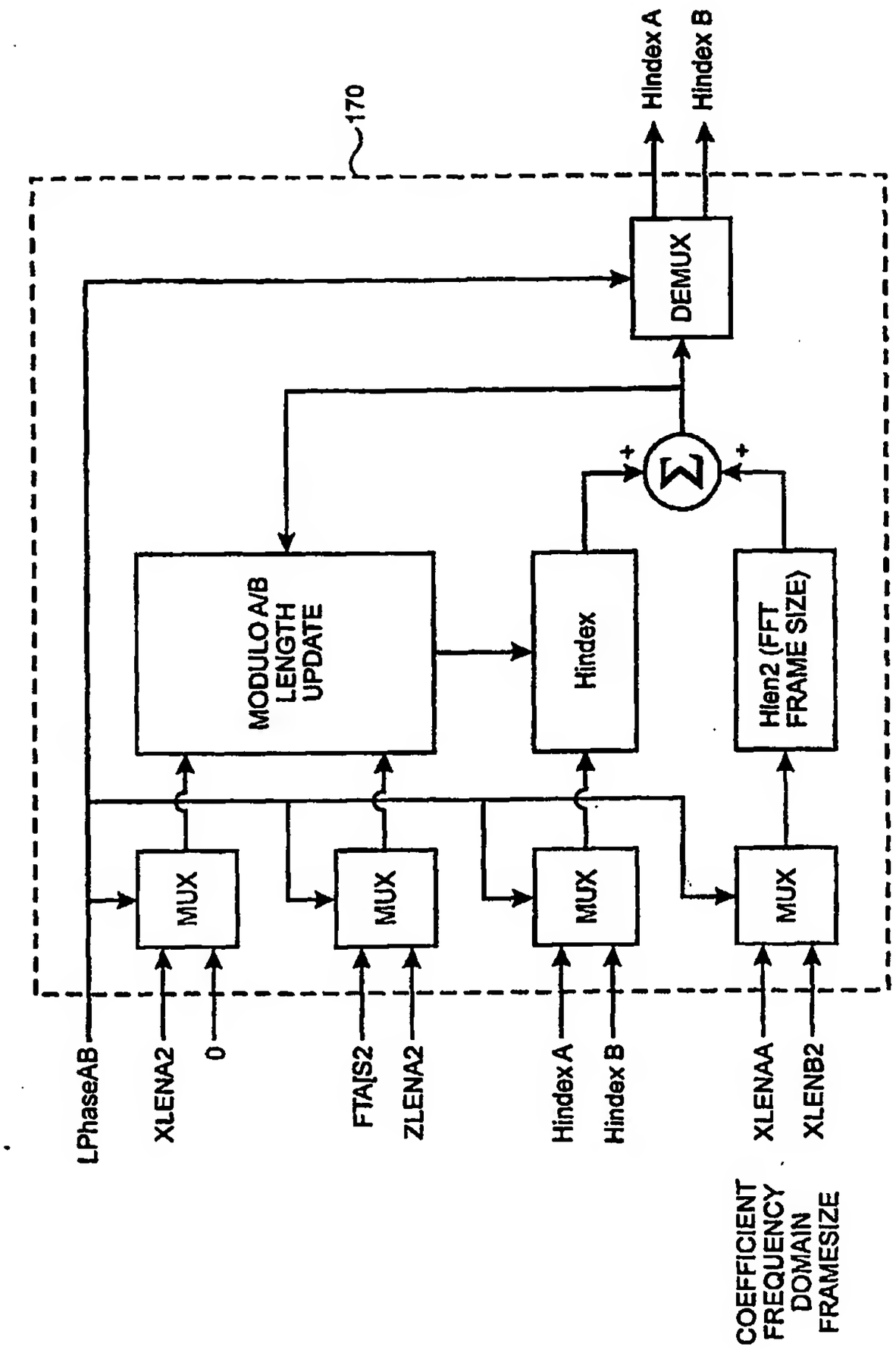
COEFFICIENT INDEX PROCESSING
170
Hindex A
Hindex B
DEMUX
MODULO A/B LENGTH UPDATE
Hindex
Hlen2 (FFT FRAME SIZE)
MUX
MUX
MUX
MUX
LPhaseAB
XLENA2
0
FTA[S2
ZLENA2
Hindex A
Hindex B
XLENAA
XLENB2
COEFFICIENT FREQUENCY DOMAIN FRAMESIZE

FIG. 8

COLLECTION INDEX
MODULO UPDATE
192
MODULO UPDATE
acolindex
acolindexprev
Hlen
TWO PHASE MODULO UPDATE

FIG. 9

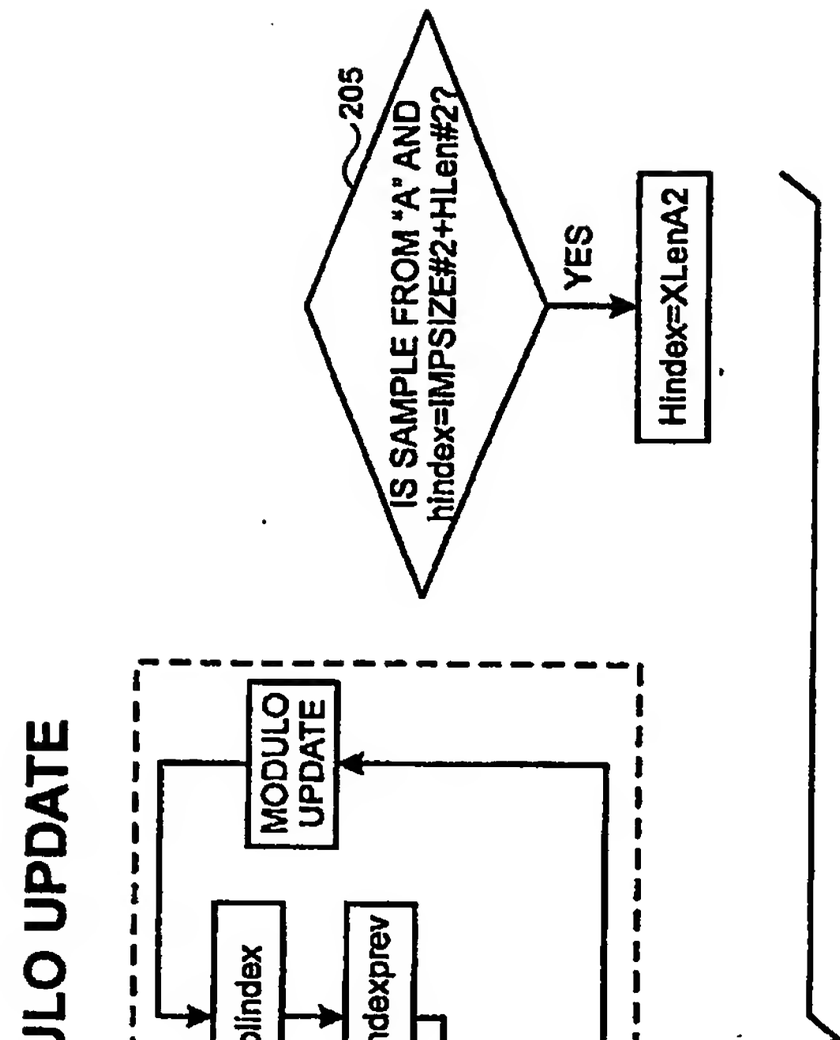
FRAME MODULO UPDATE
MODULO UPDATE
acolindex
acolindexprev
Hlen
205
IS SAMPLE FROM "A" AND hIndex=IMPSIZE#2+HLen#2?
YES
HIndex=XLenA2
203
IS SAMPLE FROM "B" AND hIndex=IMPSIZE#2?
YES
hIndex=0

FIG. 10

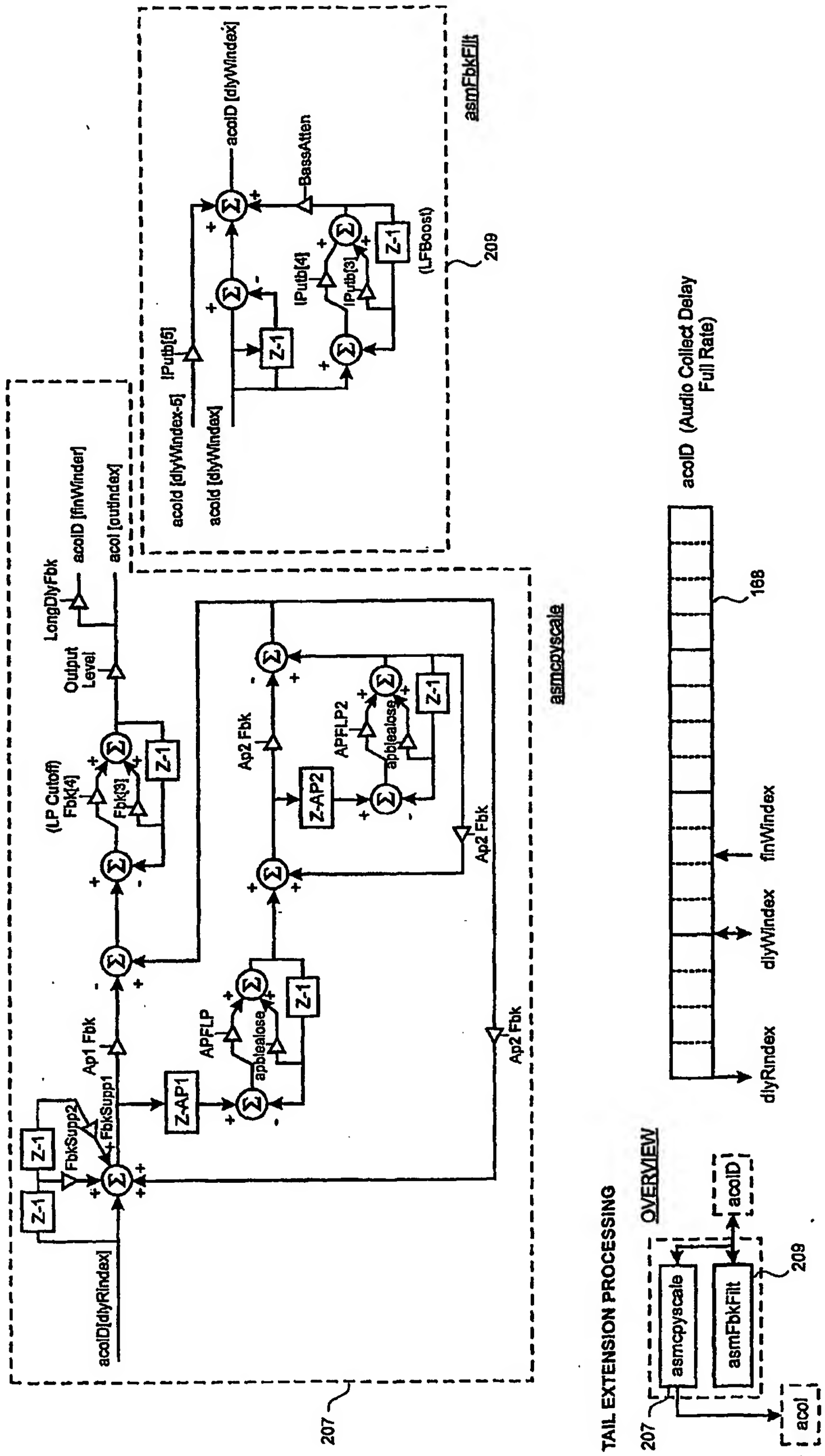
TAIL EXTENSION PROCESSING
asmFbkFilt
acolD [dlyWindex]
BassAtten
IPutb[5]
IPutb[4]
IPutb[3]
Z-1
(LFBoost)
209
acolD [dlyWindex-5]
acolD [dlyWindex]
acolD [finWinder]
acol [outindex]
LongDlyFbk
Output Level
(LP Cutoff) Fbk[4]
Fbk[3]
Ap1 Fbk
Ap2 Fbk
FbkSupp2
FbkSupp1
Z-AP1
Z-AP2
APFLP
APFLP2
applealose
asmcpyscale
acolD[dlyRindex]
207
TAIL EXTENSION PROCESSING
OVERVIEW
acolD (Audio Collect Delay Full Rate)
168
dlyWindex
finWindex
dlyRindex
asmcpyscale
asmFbkFilt
acol

FIG. 11

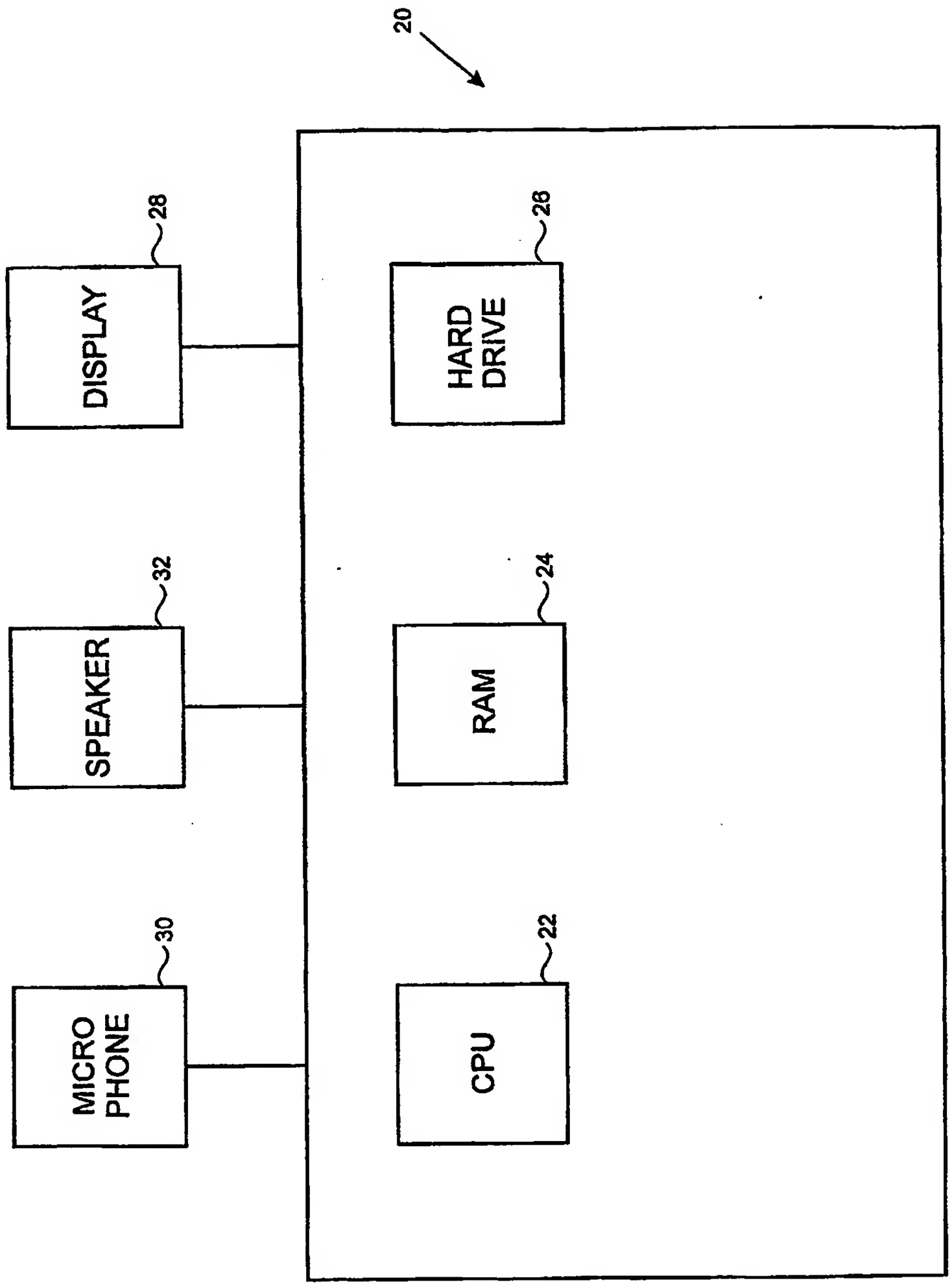
20
DISPLAY
28
HARD DRIVE
28
SPEAKER
32
RAM
24
MICRO PHONE
30
CPU
22

FIG. 12